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L4: Entry 70 of 87

File: DWPI

Jul 10, 1997

DERWENT-ACC-NO: 1998-099529
DERWENT-WEEK: 199809
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TITLE: Water-absorptive crosslinked acrylic acid (co)polymer preparation - by
(co)polymerisation of aqueous solution of partially neutralised acrylic acid in thin
film in presence of crosslinking agent

INVENTOR: RYABOVA, E N; SHATSKII, O V ; SHVAREVA, G N

PATENT-ASSIGNEE: AKROS STOCK CO (AKROR), ORGSTEKLO STOCK CO (ORGSR)

PRIORITY-DATA: 1993RU-0044275. (September 7, 1993)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
RU 2083596 C1	July 10, 1997		008	C08F020/06

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
RU 2083596C1	September 7, 1993	1993RU-0044275	

INT-CL (IPC): C08 F 20/06

ABSTRACTED-PUB-NO: RU 2083596C
BASIC-ABSTRACT:

Preparation of a water-absorptive polymer (I) includes polymerisation of 40-60 % aqueous solution of acrylic acid or its mixture with 1-50 mol.% of methacrylic acid, 50-80% neutralised with alkali metal hydroxide or ammonia, in the presence of a crosslinking agent selected from derivatives of triethanolamine and polyethylene glycol and N,N'-methylene-bis-(meth)acrylamide, in an amount of 0.1-1.0 wt.% based on initial monomer. The polymerisation is carried out in a quasi-hermetic thin film at 50-90 deg. C.

USE - (I) show high water absorption, and are useful e.g. in sanitary engineering, as water-holding agents in agriculture, in processing by-products in the coal industry or for plugging solutions in petroleum extraction.

ADVANTAGE - Conditions of labour are improved and strength of the swollen gel is increased. The dry polymer retains high water-absorption property. Typically the water absorption (1 hour) for water is 627-1038 g/g and for 0.9% sodium chloride solution is 64.3-78.7 g/g; and the gel strength is 2.00-6.35 mm, compared with 1.00-1.50 mm for a prior art analogue.

ABSTRACTED-PUB-NO: RU 2083596C
EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.0/0

DERWENT-CLASS: A14 A96 C07 D22 F07 H01
CPI-CODES: A04-F04A; A08-C01; A10-B04; A10-E21B; A11-A05; A11-B04; C04-C03B; D09-C06;
F04-C01; F04-E04; H01-C;

appeal

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File: DWPI

Mar 26, 1999

DERWENT-ACC-NO: 1999-267260

DERWENT-WEEK: 199926

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TITLE: Water-containing resin composite - by dispersing acryl copolymer prepared in micro-suspension-polymerisation of radical monomer containing alkoxysilyl, and radical monomer, and colloidal metal oxide into water-containing medium

Basic Abstract Text:

Water-containing resin composite is new, prepared by dispersing acryl copolymer prepared in micro-suspension-polymerisation of (a) radical monomer containing alkoxysilyl, and (b) radical monomer, and colloidal metal oxide into water-containing medium.

Title (1):

Water-containing resin composite - by dispersing acryl copolymer prepared in micro-suspension-polymerisation of radical monomer containing alkoxysilyl, and radical monomer, and colloidal metal oxide into water-containing medium

Basic Abstract Text (1):

Water-containing resin composite is new, prepared by dispersing acryl copolymer prepared in micro-suspension-polymerisation of (a) radical monomer containing alkoxysilyl, and (b) radical monomer, and colloidal metal oxide into water-containing medium.

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File: USPT

Sep 4, 1990

US-PAT-NO: 4954562

DOCUMENT-IDENTIFIER: US 4954562 A

TITLE: Water absorbent resins

DATE-ISSUED: September 4, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Anderson; Mark	Wheaton	IL		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
American Colloid Company	Arlington Heights	IL			02

APPL-NO: 7/ 303815 [PALM]
DATE FILED: January 30, 1989*appeal*

PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATION This application is a continuation-in-part of my copending applications, Ser. No. 854,000, filed on Apr. 21, 1986 now U.S. Pat. No. 4,677,174, issued on June 30, 1987, Ser. No. 872,654, filed on June 10, 1986 now U.S. Pat. No. 4,755,562 issued on July 5, 1988 and Ser. No. 067,233 filed on June 25, 1987 now U.S. Pat. No. 4,802,773.

INT-CL: [5] C08K 3/22, C08F 8/32

US-CL-ISSUED: 524/779; 524/780, 524/783, 524/784, 524/785, 524/786, 524/789, 524/430, 526/240, 526/95, 525/381, 525/382

US-CL-CURRENT: 524/779; 524/430, 524/780, 524/783, 524/784, 524/785, 524/786, 524/789, 525/381, 525/382, 526/240, 526/95

FIELD-OF-SEARCH: 526/95, 526/240, 526/430, 524/430, 524/779, 524/780, 524/783, 524/784, 524/785, 524/786, 524/787, 525/381, 525/382

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>4183991</u>	January 1980	Smiley et al.	524/430
<input type="checkbox"/>	<u>4286082</u>	August 1981	Tsubakimoto et al.	526/240
<input type="checkbox"/>	<u>4552938</u>	November 1985	Mikita et al.	526/240
<input type="checkbox"/>	<u>4612250</u>	September 1986	Takedo et al.	428/500
<input type="checkbox"/>	<u>4794140</u>	December 1988	Alexander	524/827

ART-UNIT: 155

PRIMARY-EXAMINER: Kulkosky; Peter F.

ATTY-AGENT-FIRM: Marshall, O'Toole, Gerstein, Murray & Bicknell

ABSTRACT:

Improved water-absorbing, crosslinked acrylate resins are prepared by aqueous polymerization of (A) acrylic acid neutralized 70 to 100 mole percent for example with ammonia and/or caustic alkali and/or an amine; with (B) acrylamide in a mole ratio of 70 to 100 mole percent (A) to 30:0 mole percent (B); (C) styrene, in an amount of 0% to 25% based on the weight of acrylic acid or acrylate; and (D) a water miscible or a water soluble polyvinyl monomer in the presence of (E) a metal oxide, such as titanium dioxide, in an amount of 0.001% to 5% based on the total weight of (A), (B), (C), (D) and (E), such that the amount of (D) is 0.001 to 0.6 weight percent based on the total weight of (A), (B), (C), (D) and (E). In addition, surface treating the water-absorbing crosslinked acrylate resins with a polyquaternary amine substantially further increases both the rate of water absorption and the quantity of water absorbed and retained by the metal oxide-containing resin. The untreated and the surface-treated resins also maintain the necessary "dry feel" required for most applications.

44 Claims, 0 Drawing figures

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L4: Entry 20 of 87

File: USPT

Sep 4, 1990

DOCUMENT-IDENTIFIER: US 4954562 A

TITLE: Water absorbent resins

Abstract Paragraph Left (1):

Improved water-absorbing, crosslinked acrylate resins are prepared by aqueous polymerization of (A) acrylic acid neutralized 70 to 100 mole percent for example with ammonia and/or caustic alkali and/or an amine; with (B) acrylamide in a mole ratio of 70 to 100 mole percent (A) to 30:0 mole percent (B); (C) styrene, in an amount of 0% to 25% based on the weight of acrylic acid or acrylate; and (D) a water miscible or a water soluble polyvinyl monomer in the presence of (E) a metal oxide, such as titanium dioxide, in an amount of 0.001% to 5% based on the total weight of (A), (B), (C), (D) and (E), such that the amount of (D) is 0.001 to 0.6 weight percent based on the total weight of (A), (B), (C), (D) and (E). In addition, surface treating the water-absorbing crosslinked acrylate resins with a polyquaternary amine substantially further increases both the rate of water absorption and the quantity of water absorbed and retained by the metal oxide-containing resin. The untreated and the surface-treated resins also maintain the necessary "dry feel" required for most applications.

Brief Summary Paragraph Right (11):

Another object of the present invention is to provide a process for preparing a crosslinked resin by polymerization of acrylic acid neutralized 70-100 mole percent and a polyvinyl monomer, in the presence of a metal oxide, in proportions of 30 to 80% by weight partially or fully neutralized acrylic acid; 0.001 to 5% of a metal oxide, based on the total weight of the polymerizable solution; 0% to 25% by weight styrene, based on the weight of acrylic acid; and 0% to 30% by weight acrylamide, based on the weight of acrylic acid, in aqueous solution.

Brief Summary Paragraph Right (17):

In brief, the present invention is directed to a process for preparing water-absorbing, crosslinked resins by aqueous polymerization of (A) acrylic acid neutralized 70 to 100 mole percent for example with ammonia and/or caustic alkali and/or an amine; with (B) acrylamide in a mole ratio of 70 to 100 mole percent (A) to 30:0 mole percent (B); (C) styrene, in an amount of 0% to 25% based on the weight of acrylic acid or acrylate; and (D) a water miscible or a water soluble polyvinyl monomer; in the presence of (E) a metal oxide, in an amount of .001% to 5% based on the total weight of (A), (B), (C), (D) and (E), such that the amount of (D) is 0.001 to 0.6 weight percent based on the total weight of (A), (B), (C), (D) and (E). To achieve the full advantage of the present invention the concentration of monomers (A), (B), (C), (D) and of metal oxide (E) is at least 50 wt. % of the aqueous solution. During synthesis, the resin dries to an acceptable water content of at least less than 15% by weight of the polymer, and thereafter the resin is contacted with a polyquaternary amine in an amount sufficient for interaction to substantially improve the water-absorbent and water-retention properties of the resin. A "dry feel" is obtained at a polyvinyl monomer concentration of at least 0.2 wt. percent of the aqueous solution.

CLAIMS:

38. A method of manufacturing a resin composition comprising mixing a solution of (A) acrylic acid, neutralized 70 to 100 mole percent, (B) a nonreactive and water-insoluble metal oxide in an amount of 0.001% to 5% based on the total weight of the solution; and (C) acrylamide in a mole ratio of (A):(C) in the range of 70:30 to 100:0; (D) a water soluble or water miscible polyvinyl monomer crosslinking agent in an amount of 0.001 to 0.6 percent by weight of (A) plus (B) plus (C); and water to form a mixed solution, wherein the monomers of the mixed solution consist essentially of (A), (C) and (D); and initiating polymerization of monomers (A), (C) and (D) such that during polymerization,

the exothermic heat of reaction is substantially the only heat energy used to accomplish polymerization, crosslinking and to drive off sufficient water to form a water absorbing crosslinked polyacrylate resin composition including the metal oxide resin (B) and having a water content of 15 percent by weight or less.

43. A method of absorbing aqueous liquids comprising mixing a solution of (A) acrylic acid, neutralized 70 to 100 mole percent; (B) a non-reactive and water-insoluble metal oxide in an amount of 0.001% to 5% based on the total weight of the solution; and (C) acrylamide in a mole ratio of acrylic acid:acrylamide in the range of 70:30 to 100:0; (D) a water soluble or water miscible polyvinyl monomer crosslinking agent in an amount of 0.001 to 0.6 percent by weight of (A) plus (B) plus (C); and water to form a mixed solution, wherein the monomers of the mixed solution consist essentially of (A), (C) and (D) and the concentration of (A), (B), (C) and (D) is below 70 percent by weight of the monomer solution prior to polymerization initiation; and initiating polymerization of monomers (A), (C) and (D) such that during polymerization, the exothermic heat of reaction is substantially the only heat energy used to accomplish polymerization, crosslinking and to drive off sufficient water to form a water absorbing crosslinked polyacrylate resin including the metal oxide (B) and having a water content of 15 percent by weight or less, and thereafter contacting said resin with an aqueous liquid to absorb said aqueous liquid into said resin.